What is claimed is:

1. An optical fiber composed of:

at least a section of the first kind having chromatic dispersion not less than a given positive value x and negative chromatic dispersion slope at a given wavelength; and

at least a section of the second kind having chromatic dispersion not more than -x and positive chromatic dispersion slope at said given wavelength.

2. An optical fiber according to claim 1, wherein said optical fiber is composed of a core and a cladding which surrounds said core and has a mean refractive index lower than that of said core, at least one of said core and cladding includes regions spaced apart in cross section and made of sub mediums whose refractive indices are different from those of main mediums constituting the optical fiber, and at least one of the cross-sectional areas and the refractive indices of the regions made of the sub mediums change along the fiber axis.

3. An optical fiber according to claim 2, wherein the chromatic dispersion at the given wavelength is larger than 1 ps/nm/km in said section of the first kind and smaller than -1 ps/nm/km in said section of the second kind and the total length of the fiber sections whose absolute values of the chromatic dispersion are

below 1 ps/nm/km is less than 1/10 of the full length of the optical fiber.

4. An optical fiber according to claim 2, wherein sections which do not contain sub mediums are spaced apart along the fiber axis.

5. An optical fiber according to claim 2, wherein at least one of the cross-sectional areas and the refractive indices of the regions made of the sub mediums change at a given period along the fiber axis and the other are uniform or change at the same period along the fiber axis.

6. An optical fiber according to claim 5, wherein the given period exceeds 1 m.

7. An optical fiber according to claim 2, further composed of at least a transition section of a given length or more where at least one of the cross-sectional areas and the refractive indices of the regions made of the sub mediums change continuously along the fiber axis and the other are uniform or change continuously along the fiber axis.

8. An optical fiber according to claim 2, wherein said main medium is silica glass and said sub medium is air.

9. An optical fiber having chromatic dispersion not less than a positive value x and negative chromatic dispersion slope at a given wavelength.

10. An optical fiber according to claim 9, composed of a core and a cladding surrounding the core and having a lower mean refractive index than that of said core, wherein at least one of said core and cladding has regions spaced apart in cross section and made of sub mediums whose refractive indices are different from those of main mediums constituting the core and the cladding.

11. A method of making an optical fiber having voids extending along the fiber axis, comprising the steps of:

preparing the preform having a plurality of voids whose cross-sectional areas are uniform along its axis; and

drawing the optical fiber from said preform, wherein a means to measure the area fraction of voids in the drawn optical fiber, a means to adjust the pressure in said voids of the preform and a means to feedback the measured area fraction of voids to adjusting means are included.

12. A method of making an optical fiber according to claim 11, wherein said means to measure the area fraction of voids comprises the sub steps of:

measuring the speed at which the preform is supplied, the speed at which the fiber is drawn and the fiber diameter during fiber drawing; and

calculating the area fraction of voids in said drawn optical fiber from these measured values, the preform diameter and the area fraction of voids in the preform, where the preform diameter and the area fraction of voids in the preform are measured before fiber drawing.

13. A method of making an optical fiber according to claim 11, wherein said means to measure the area fraction of voids comprises the sub steps of:

measuring the speed at which the fiber is drawn, the fiber diameter, the drawing tension and the temperature in drawing furnace during fiber drawing; and

calculating the area fraction of voids in said drawn optical fiber from these measured values.

14. A method of making an optical fiber according to claim 11, further comprising the preprocessing steps of:

making a preform in a single piece;

boring three or more voids in said preform along its axis; and

cleaning the surfaces of the preform at said voids, and wherein

said drawing step includes a means to prevent contaminants from intruding into said voids.

15. A method of making an optical fiber according to claim 14, wherein said boring step comprises the sub steps of:

inserting boring appliances into said preform at a temperature above the glass softening point; and

pulling out said boring appliances from said preform immediately before or after lowering the temperature of said preform.

16. A method of making an optical fiber which contains a plurality of regions made of sub mediums whose refractive indices differ from those of main mediums constituting the optical fiber comprising the steps of:

preparing a preform having a plurality of regions made of sub mediums whose cross-sectional areas are constant along the preform axis; and

drawing the optical fiber from said preform, wherein a means to adjust the heating condition through varying at least one of the temperature of the drawing furnace for heating said preform and the time length for the fiber to pass the drawing furnace is included.

17. A method of making an optical fiber according to claim 16, wherein said drawing step further includes a means to measure the area fraction of sub-medium regions in the drawn optical fiber, and a means to feedback the measured area fraction of sub-medium regions in the drawn optical fiber to said adjusting means.

18. A method of making an optical fiber according to claim 17, wherein said means to measure the area fraction of sub-medium regions comprises the sub steps of:

measuring the speed at which the preform is supplied, the speed at which the fiber is drawn and the fiber diameter during fiber drawing; and

calculating the area fraction of sub-medium regions in said drawn optical fiber from these measured values, the preform diameter and the area fraction of sub-medium regions in the preform, wherein the preform diameter and the area fraction of sub-medium regions in the preform are measured before fiber drawing.

19. A method of making an optical fiber according to claim 17, wherein said means to measure the area fraction of sub-medium regions comprises the sub steps of:

measuring the speed at which the fiber is drawn, the fiber diameter, the drawing tension and the temperature in drawing furnace during fiber drawing; and

calculating the area fraction of sub-medium regions in said drawn optical fiber from these measured values.

20. A method of making an optical fiber according to claim 16, further comprising the preprocessing steps of:

making a preform in a single piece;

boring three or more voids in said preform along its axis; and

cleaning the surfaces of the preform at said voids, and wherein

said drawing step includes a means to prevent contaminants from intruding into said voids.

21. A method of making an optical fiber according to claim 20, wherein said boring step comprises the sub steps of:

inserting boring appliances into said preform at a temperature above the glass softening point; and

pulling out said boring appliances from said preform immediately before or after lowering the temperature of said preform.

22. A method of making an optical fiber which contains a plurality of regions made of sub mediums having refractive indices different from those of main mediums constituting said core and the cladding, comprising steps of:

injecting a medium whose refractive index is changeable on exposure to radiation into given regions of the optical fiber; and

varying the refractive index of said injected medium along the fiber axis by exposing the fiber to radiation.

23. A method of making an optical fiber having a plurality of voids, comprising the step of:

closing the voids by heating and fusing the drawn optical fiber selectively at a plurality of portions spaced apart along the fiber axis.